U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

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National Environmental Research Center/Program Directory

Environmental Protection Agency

January 1974

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NATIONAL ENVIRONMENTAL RESEARCH CENTER/PROGRAM DIRECTORY

January 1974

EPA

Office of Research and Development

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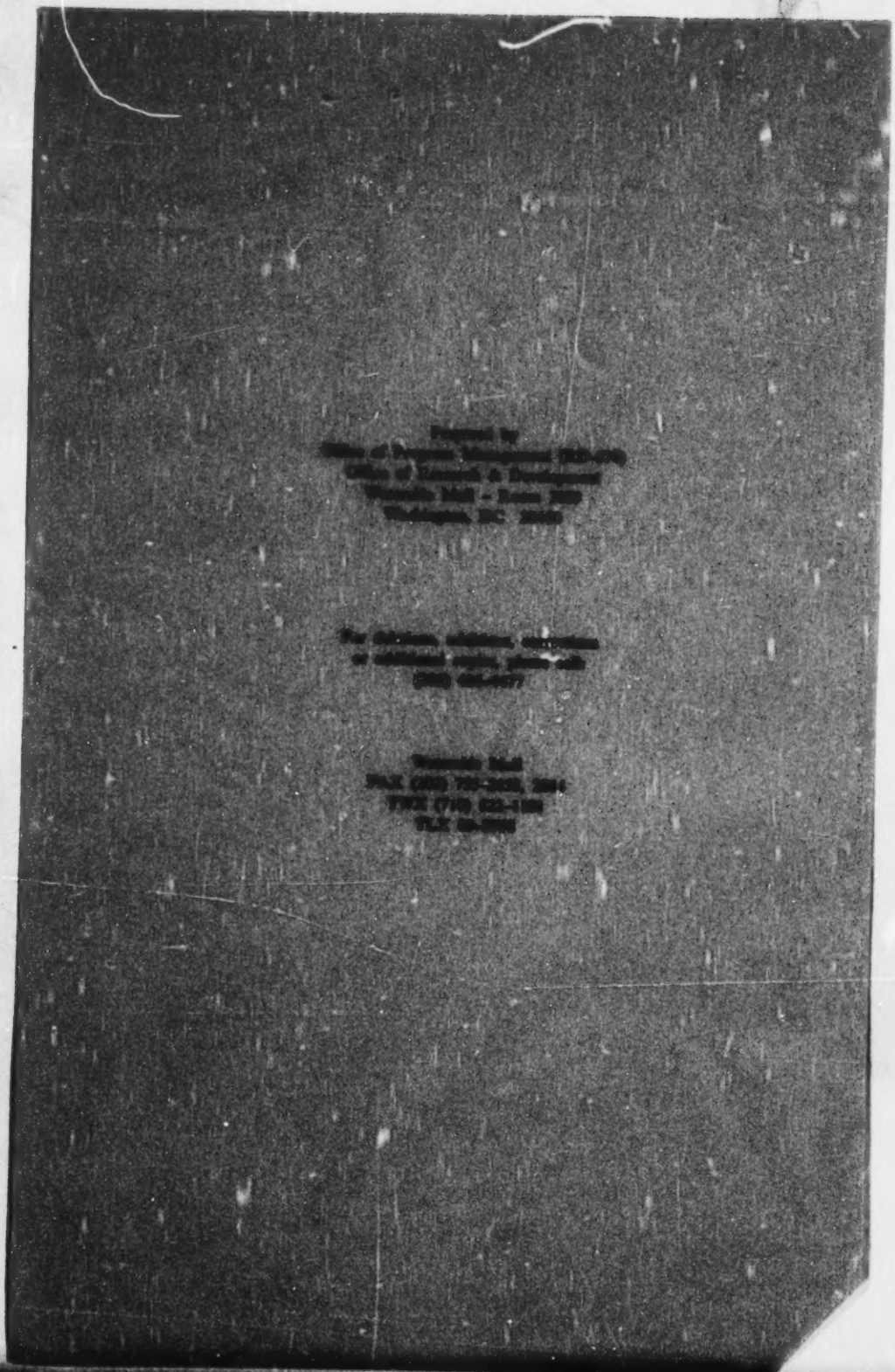

INTRODUCTION

We are pleased to send you this copy of the Office of Research and Development's (OR&D's) new **National Environmental Research Center/Program Directory** (NERC/Program Directory). This new Directory replaces the OR&D Technical Personnel Access Directory and the Laboratory Operations Division publication, National Environmental Research Center Directory. We hope you find this new version useful and informative. Following is a description of the contents of the NERC/Program Directory:

OR&D Organizational Directory – this is an organizational directory of the Office of Research and Development showing responsible individuals to the Branch level.

Directory of OR&D Program Elements – this directory shows the Program Element structure of OR&D giving the Program Element number, title, responsible Program Area Manager and Program Element Director.

Alphabetical Directory of OR&D Key Personnel – alphabetized directory of all individuals listed in the NERC/Program Directory. It also contains their organization, mailing address and telephone number.

Organization and Functions, Office of Research and Development – narrative description of work being performed in each organizational subdivision of OR&D.

Detailed Program Element descriptions are contained in OR&D's Extramural Program Information Bulletin (EXPRO). EXPRO may be obtained by calling (202) 426-4477 or by mail request to:

Office of Program Management (RD-674)
Office of Research and Development
Environmental Protection Agency
Washington, DC 20460

OR&D ORGANIZATIONAL DIRECTORY

Headquarters
Office of Research and Development
Washington, D.C. 20460

ASSISTANT ADMINISTRATOR FOR RESEARCH AND DEVELOPMENT
Dr. Stanley M. Greenfield (202) 755-2600

Executive Secretary, Science Advisory Board –
Dr. Winfred Malone, Acting (703) 557-7720
Special Tecl.nical Assistant – E. Paul Richitt (202) 755-0466

Office of Program Management
Dr. David G. Stephan, Director (202) 755-0473

Deputy Director – William A. Cawley (202) 755-0611
Minority Institutions Research Support Program –
Dr. Willie Ashley, Jr. (202) 755-0638

Assistant Director for Resources Management
William Frietsch, III (202) 755-1598

Administrative Management Staff – Everett L. Lemley (202) 426-2026
Allowance Staff – Roy H. Simpers (202) 426-5767
Project Processing Staff – Bernard E. McMahon (202) 426-2275
Publications Staff – John A. Dovel, Jr. (202) 426-2175

Assistant Director for Program Development
Dr. W. Randall Shobe, Acting (202) 755-0464

Management Information Staff – Paul Thorpe (202) 426-2254
Planning and Reporting Staff – Calvin O. Lawrence (202) 426-4255

DEPUTY ASSISTANT ADMINISTRATOR FOR PROGRAM INTEGRATION
Dr. Leland D. Attaway (202) 755-2611

Deputy Director – Dr. John L. Buckley (202) 426-2683

DEPUTY ASSISTANT ADMINISTRATOR FOR ENVIRONMENTAL SCIENCES
Dr. Herbert L. Wiser (202) 755-0448

Special Technical Assistant for Water Supply Research
Dr. Hend Gorchev (202) 755-0644

Headquarters
Office of Research and Development
Washington, D.C. 20460

Special Technical Assistant for Criteria Development Dr. Harry Landon	(202) 426-9454
Health Effects Division **Dr. J. Wesley Clayton, Acting**	(202) 755-0614
Epidemiology Branch - Dr. George Simon	(202) 755-0626
Toxicology Branch - Dr. J. Wesley Clayton	(202) 755-0614
Ecological Processes and Effects Division **Dr. Frank G. Wilkes, Acting**	(202) 426-4497
Coastal Zone Ecosystem Branch - Paul Lefcourt	(202) 426-2407
Atmospheric-Terrestrial Ecosystem Branch - Robert A. Papetti	(202) 426-2415
Watershed Ecosystem Branch - Dr. Frank G. Wilkes	(202) 426-4497
DEPUTY ASSISTANT ADMINISTRATOR FOR ENVIRONMENTAL ENGINEERING **Albert C. Trakowski**	(202) 755-2532
Deputy Director - Dale E. Oyster	(202) 755-0633
Technology Transfer Staff - Robert E. Crowe	(703) 557-7700
Municipal Pollution Control Division **William A. Rosenkranz**	(202) 426-2660
Transport & Treatment Systems Branch - Laurence Gray	(202) 426-8553
Process Development Branch - James V. Basilico	(202) 426-3975
Control & Treatment Integration Branch - Darwin R. Wright	(202) 426-1532
Industrial Pollution Control Division **William J. Lacy**	(202) 755-0448c
Heavy Industrial Branch - George Rey	(202) 426-9478
Light Industrial Branch - Harold G. Keeler	(202) 426-9428
Non-Point Pollution Control Division **Dr. Thomas A. Murphy**	(202) 426-0287
Agricultural and Spills Branch - Kurt Jakobson	(202) 426-0810
Mining and Land Modification Branch - Donald O'Bryan, Jr.	(202) 426-0812

Headquarters
Office of Research and Development
Washington, D.C. 20460

Air Pollution Control Division	
Richard Harrington	(202) 755-0633
Air Technology Branch – Arnold J. Goldberg	(202) 755-0448
DEPUTY ASSISTANT ADMINISTRATOR FOR MONITORING SYSTEMS	
Willis B. Foster	(202) 755-2606
Planning and Review Staff – William Sayers	(202) 426-2387
Quality Assurance Division	
Guntis Ozolins, Director	(202) 755-0646
Quality Control Branch – Thomas W. Stanley	(202) 426-2382
Standardization Branch – Dr. Robert B. Medz	(202) 426-2382
Equipment and Techniques Division	
Dr. Henry F. Enos	(202) 755-0646
Data and Information Research Division	
H. Matthew Bills	(202) 755-0635
Data Research Branch – M. Wayne Bloch	(202) 426-2355
Information Research Branch – Luther E. Garrett	(202) 426-2355
Special Systems Development Staff – Clifton E. James	(202) 426-2356
WASHINGTON ENVIRONMENTAL RESEARCH CENTER	
Dr. Peter House, Acting Director	(703) 557-7484
Ecological Studies & Technology Assessment Branch	
Edwin B. Royce	(703) 557-7716
Economic Analysis Branch – Dr. Fred H. Abel	(703) 557-7480
Systems Analysis Branch – Roger D. Shull	(703) 557-7490
Forecasting and Analysis Branch – Edward Williams	(703) 557-7484
Planning and Management Research Branch – Alan Neuschatz	(703) 557-1471

ORD Program Elements Assigned:
1BA030 – Water Quality Implementation Research
1DA315 – Economic benefit Analysis
1HA091 – Standards Research
1HA093 – Systems Evaluation

Headquarters
Office of Research and Development
Washington, D.C. 20460

1HA094 – Economics Research
1HA095 – Ecological Impact
1HA096 – Environmental Forecasting & Analysis
1HA097 – Environmental Management Research
1HA098 – Comprehensive Environmental Planning Research

National Environmental Research Center
Research Triangle Park, North Carolina 27711

Dr. John F. Finklea, Director
(919) 549-2281

Hours: 8:00 - 4:30 EST
FAX (919) 549-2129 TLX 31211
Operator: (919) 549-8411

Deputy Director - Dr. Jack E. Thompson	(919) 549-2281
Program Coordination Staff - Dr. Paul A. Kenline	(919) 549-2613
Special Studies Staff - Dr. F. Gordon Hueter	(919) 549-2266

ORD Program Elements Assigned:
1AA001 - Pollutant Characterization
1AA002 - Fuel & Fuel Additive Registration
1AA003 - Regional Air Pollution Study (RAPS)

CONTROL SYSTEMS LABORATORY
Mutual Bldg., Durham
(Use Center Address for mail)
FAX (919) 688-8221

Dr. John K. Burchard, Director	(919) 688-8335
Particulate and Chemical Processes Branch - Alfred B. Craig	(919) 549-2509
Engineering Analysis Branch - Dr. John O. Smith	(919) 688-8421
Clean Fuels and Energy Branch - Robert Hangebrauck	(919) 688-8391
Gas Cleaning and Metallurgical Processes Branch - Everett Tyler	(919) 549-8477

ORD Program Elements Assigned:
1AB012 - Particulate Control
1AB013 - SOx Control
1AB014 - NOx Control
1AB015 - Control Technology - Other Pollutants

National Environmental Research Center
Research Triangle Park, North Carolina 27711

HUMAN STUDIES LABORATORY
(Use Center Address for mail)
FAX & TLX same as Center

Dr. John H. Knelson, Acting Director	(919) 549-2242
Epidemology Branch – Dr. Carl G. Hayes, Acting	(919) 549-2242
Biometry Branch – Dr. William C. Nelson	(919) 549-2567
BioEnvironmental Measurement Branch – Ferris Benson, Jr.	(919) 549-2479
BioEnvironmental Laboratory Branch – Dr. William S. Simmons	(919) 549-2622
Clinical Studies Branch – Dr. John H. Knelson, Acting	(919) 549-2603

ORD Program Elements Assigned:
1AA004 – Economic Criteria
1AA005 – Community Health Effects Surveillance Studies
1AA007 – Biomedical Research
1FA081 – Radiation Epidemiological Research

CHEMISTRY AND PHYSICS LABORATORY
(Use Center Address for mail)
FAX & TLX same as Center

Dr. A. Paul Altshuller, Director	(919) 549-2191
Air Quality Measurement Methods Branch – Andrew E. O'Keeffe	(919) 549-2216
Atmospheric Chemistry and Physics Branch – Dr. Philip L. Hanst	(919) 549-2201
Emission Measurements Research Branch – Jack Wagman	(919) 549-2216

ORD Program Elements Assigned:
1AA008 – Formation & Decay of Pollutants
1AA010 – Instrumentation & Analytical Methods Development

National Environmental Research Center
Research Triangle Park, North Carolina 27711

METEOROLOGY LABORATORY
Bldg. "C", NCHS, RTP
(Use Center Address for mail)
FAX & TLX same as Center

Lawrence E. Niemeyer, Acting Director	(919) 549-4564
Model Development Branch - Vacant	(919) 549-4564
Special Projects Branch - Paul A. Humphrey	(919) 549-4545
Environmental Applications Branch - Bruce Turner	(919) 549-4564
Climate Analysis Branch - George C. Holzworth	(919) 549-4551

ORD Program Elements Assigned:
1AA009 - Meteorological Research

QUALITY ASSURANCE AND ENVIRONMENTAL MONITORING LABORATORY
(Use Center Address for mail)
FAX & TLX same as Center

Dr. S. David Shearer, Jr., Director	(919) 549-2106
Statistical Services Staff - Gerald G. Akland	(919) 549-2227
Analytical Chemistry Branch - Dr. Richard J. Thompson	(919) 549-2454
Methods Standardization Branch - Dr. John B. Clements	(919) 549-2196
Quality Control Branch - Seymour Hochheiser	(919) 549-2231
Environmental Monitoring Branch - Franz J. Burman	(919) 549-2561

ORD Program Elements Assigned:
1HA325 - Data and Information Research
1HA326 - Advanced Monitoring Techniques
1HA327 - Monitoring Quality Assurance

National Environmental Research Center
Research Triangle Park, North Carolina 27711

PESTICIDES AND TOXIC SUBSTANCES EFFECTS LABORATORY
(Use Center Address for Mail)

Dr. William F. Durham, Director	(919) 549-2655
Chemistry Branch - Dr. Talaat M. Shafik, Acting	(919) 549-2358
Toxic Effects Branch - K. Diane Courtney, Acting	(919) 549-2693
Biochemistry and Physiology Branch - Dr. Anthony V. Colucci	(919) 549-2655

ORD Program Elements Assigned:
1EA078 - Pesticides Health Effect Research
1EA079 - Pesticides Identification Methodology
1HA099 - Toxic Substances Health Effects Research
1HA127 - Monitoring Quality Assurance

EXPERIMENTAL BIOLOGY LABORATORY
(Use Center Address for mail)
FAX & TLX same as Center

Dr. R. John Garner, Director	(919) 549-2771
Toxicology Branch - Daniel S. Cahill	(919) 549-2617
Technical Studies Branch - George E. Anderson	(919) 549-2617
Pathobiology Research Branch - David L. Coffin	(919) 549-2532
Molecular Biology Branch - Paul E. Brubaker	(919) 549-2631
Neurophysiology and Behavioral Research Branch - John A. Santoiuctto	(919) 549-2774

ORD Program Elements Assigned:
1AA007 - Biomedical Research
1FA082 - Radiation Health Effects Research
1FA084 - Radiation Methods and Measurements

National Environmental Research Center
200 SW 35th Street
Corvallis, Oregon 97330

Dr. A. F. Bartsch, Director
(503) 752-4314

Hours: 8:00 - 4:30 PST
FAX (503) 752-4379 TWX (510) 590-0687
Operator: (503) 752-4211

Deputy Director - Earl N. Kari	(503) 752-4311
Program Coordination Staff - James C. McCarty	(503) 752-4362
Public Affairs Staff - Chris L. West	(503) 752-4300
Administrative Staff - Michael G. Hebert	(503) 752-4316

NATIONAL MARINE WATER QUALITY LABORATORY
P. O. Box 277
West Kingston, Rhode Island 02982
Hours: 8:00 - 4:30 EST
FAX (401) 528-4370 TWX (710) 387-1529

Dr. Eric D. Schneider, Director	(401) 789-9751
Ecological Research Branch - Donald K. Phelps	(401) 847-8176
Toxicological Research Branch - Ronald Eisler	(401) 847-8176
Laboratory Services Branch - Carmon S. Hegre	(401) 847-8176
Bears Bluff Field Station - Dr. Richard J. Berry Box 368 Johns Island, South Carolina 29455 Hours: 8:30 - 5:00 EST FAX FTS (803) 577-4171, ask for 559-0371	(803) 577-4171, ask for 559-0371

ORD Program Elements Assigned:
1BA022 - Marine Fishes, Other Marine Life, and Wildlife

National Environmental Research Center
Corvallis, Oregon 97330

NATIONAL WATER QUALITY LABORATORY
6201 Congdon Boulevard
Duluth, Minnesota 55804
Hours: 8:00 - 4:30 CST
FAX (218) 727-6539 TWX (910) 561-2535

Dr. Donald I. Mount, Director (218) 727-6548

Western Fish Toxicology Station - Dr. Gerald R. Bouck (503) 752-4344
200 S.W. 35th Street
Corvallis, Oregon 97330
Hours: 8:00 - 4:30 PST
FAX (503) 752-4379 TWX (510) 590-0687

Newtown Fish Toxicology Station - William B. Horning (513) 684-8601
3411 Church Street
Cincinnati, Ohio 45244
Hours: 8:00 - 4:30 EST, No FAX

ORD Program Elements Assigned:
1BA021 - Freshwater Fishes, other Freshwater Life, and Wildlife

National Environmental Research Center
Corvallis, Oregon 97330

ARCTIC ENVIRONMENTAL RESEARCH LABORATORY
College, Alaska 99701
Hours: 8:00 – 4:30 AST
Operator: (907) 479–2251
FAX FTS (206) 442–0150 TLX 090–25342
Ask for (907) 479–2251, x212

Richard W. Latimer, Director (Ask for (907) 479–7728)	(206) 442–0150
Ecological Research Branch – Frederick B. Lotspeich	(206) 442–0150
Technology Research Branch – Merritt A. Mitchell	(206) 442–0150

ORD Program Elements Assigned:
1AA009 – Meterological Research
1BA021 – Freshwater Fishes, Other Freshwater Life, and Wildlife
1BA022 – Marine Fishes, Other Marine Life, and Wildlife
1BB044 – Cold Climate Waste Treatment

PACIFIC NORTHWEST ENVIRONMENTAL RESEARCH LABORATORY
(Use Center Address for mail)
FAX & TWX same as Center

Dr. Norbert A. Jaworski, Director	(503) 752–4572
Thermal Pollution Branch – Frank H. Rainwater	(503) 752–4350
Coastal Pollution Branch – Dr. Donald J. Baumgartner	(503) 752–4368
Eutrophication Branch – Thomas E. Maloney	(503) 752–4353
Eutrophication Survey Branch – Jack H. Gakstatter	(503) 752–4575
Laboratory Services Branch – Daniel F. Krawczyk	(503) 752–4339

ORD Program Elements Assigned:
1BA025 – Fate of Pollutants in Marine Waters
1BA031 – Eutrophication & Lake Restoration
1BA032 – Thermal Pollution Research
1BB036 – Heavy Industrial Sources
1BB037 – Food, Paper, and Other Industrial Sources
1BB039 – Agricultural Sources
1BB392 – Thermal Pollution Technology

National Environmental Research Center
Corvallis, Oregon 97330

GROSSE ILE LABORATORY
9311 Groh Road
Grosse Ile, Michigan 48138
Hours: 8:15 - 4:45 EST
FAX (313) 226-7554 TWX (810) 231-7184

Dr. Tudor T. Davies, Director	(313) 226-7554
Heavy Industrial Sources Branch - Dr. Hugh B. Durham	(313) 226-7554
Large Lakes Branch - Nelson A. Thomas	(313) 226-7554

ORD Program Elements Assigned:
1BA026 - Large Lakes Research
1BA042 - Hydrologic Modification
1BB036 - Heavy Industrial Sources

ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY
P. O. Box 1198
Ada, Oklahoma 74820
Hours: 8:00 - 5:00 CST
FAX (405) 253-2220 TWX (910) 830-6748

William C. Galegar, Director	(405) 253-2224
Subsurface Environmental Branch - Jack W. Keeley	(405) 253-2309
Water Quality Control Branch - Dr. Curtis C. Harlin, Jr.	(405) 253-2212
Treatment and Control Technology Branch - Marvin L. Wood	(405) 253-2226
Laboratory Services Branch - Billy L. DePrater	(405) 253-2335

ORD Program Elements Assigned:
1BA024 - Fate of Pollutants in Ground Waters
1BB036 - Heavy Industrial Sources
1BB039 - Agricultural Sources
1BB040 - Mining Sources
1BB045 - Water Quality Control

National Environmental Research Center
Corvallis, Oregon 97330

GULF BREEZE ENVIRONMENTAL RESEARCH LABORATORY

Sabine Island
Gulf Breeze, Florida 32561
Hours: 7:30 - 4:00 CST
FAX (904) 377-5268 TWX (510) 730-7631

Dr. Thomas W. Duke, Director	(904) 377-5268
Ecological Studies Branch - Gerald E. Walsh	(904) 377-5268
Physiological Effects Branch - Delwayne R. Nimmo	(904) 377-5268
Laboratory Services Branch - Alfred J. Wilson, Jr.	(904) 377-5268

ORD Program Elements Assigned:
1EA077 - Pesticides Ecological Effects Research

SOUTHEAST ENVIRONMENTAL RESEARCH LABORATORY

College Station Road
Athens, Georgia 30601
Hours: 8:15 - 4:45 EST
FAX (404) 546-3415 TWX (810) 754-3903

Dr. David W. Duttweiler, Director	(404) 546-3134
Argo-environmental Systems Branch - Dr. H. Page Nicholson	(404) 546-3145
Analytical Chemistry Branch - William T. Donaldson	(404) 546-3183
Freshwater Ecosystems Branch - Dr. Walter M. Sanders, III	(404) 546-3171

ORD Program Elements Assigned:
1BA023 - Fate of Pollutants in Fresh Surface Waters
1BA027 - Methods Development for Identification of Pollutants
1BB036 - Heavy Industrial Sources
1BB039 - Agricultural Sources
1BB040 - Mining Sources

National Environmental Research Center
Corvallis, Oregon 97330

NATIONAL ECOLOGICAL RESEARCH LABORATORY
(Use Center Address for mail)
Hours: 8:00 - 4:30 PST
FAX & TWX same as Center

Dr. Norman R. Glass, Acting Director	(503) 752-4401
Plant Ecology Branch - Dr. Lawrence C. Raniere	(503) 752-4401
Animal Ecology Branch - Dr. Allen S. Lefohn	(503) 752-4401
Ecosystems Analysis Branch - Raymond G. Wilhour, Acting	(503) 752-4401

ORD Program Elements Assigned:
1AA006 - Ecological Impact of Air Pollution
1EA435 - Pesticides Effects in the Terrestrial Environment
1HA436 - Toxic Substances Effects in the Terrestrial Environment

National Environmental Research Center
Cincinnati, Ohio 45268

Dr. Andrew W. Breidenbach, Director
(513) 684-8201

Hours: 8:00 - 4:30 EST
FAX (513) 684-8444 TWX (810) 461-2796
Operator: (513) 684-2200

Deputy Director - Francis M. Middleton	(513) 684-8203
Program Coordination Staff - Louis W. Lefke	(513) 684-8235
Technical Information Staff - Gilbert M. Gigliotti	(513) 684-8258
Public Affairs Staff - William E. Minor	(513) 684-8348
Civil Rights & Urban Affairs Staff - William E. Tolliver	(513) 684-8219
Office of Administration - William Benoit	(513) 684-8293

ADVANCED WASTE TREATMENT RESEARCH LABORATORY
Robert A. Taft Center, Columbia Parkway Building
(use Center Address for Mail)
FAX & TWX same as Center

John J. Convery, Director	(513) 684-8231
Treatment Process Development Branch - Dr. Robert L. Bunch	(513) 684-8234
Systems & Engineering Evaluation Branch - Dr. Carl A. Brunner, Acting	(513) 684-8243
Technology Development Support Branch - Dolloff F. Bishop, Jr., Acting	(513) 684-8231

ORD Program Elements Assigned:
1BB033 - Municipal Sewered Discharges
1BB034 - Combined Sewer Overflows & Stormwater Discharges
1BB035 - Non-Sewered Domestic Wastes
1BB043 - Treatment Process Development & Optimization

National Environmental Research Center
Cincinnati, Ohio 45268

ENVIRONMENTAL TOXICOLOGY RESEARCH LABORATORY
Laidlaw Building, Cincinnati
(use Center address for Mail)
FAX (513) 684-7401

Dr. Jerry F. Stara, Director	(513) 684-7411
Experimental Toxicology Branch – Dr. Wellington Moore, Acting	(513) 684-7426
Exposure Systems and Assessment Branch – Robert G. Hinners, Acting	(513) 684-7406
Biological Effects Branch – Dr. Jerry F. Stara, Acting	(513) 684-7411

ORD Program Element:
1AA007 – Biomedical Research

INDUSTRIAL WASTE TREATMENT RESEARCH LABORATORY
Edison, New Jersey 08817
Hours: 8:00 – 4:30 EST
FAX (201) 548-3518 TWX (710) 998-0598

Dr. Peter B. Lederman, Acting Director	(201) 548-3402
Oil Spill Technology Branch – J. Stephan Dorrler, Acting	(201) 548-3508
Hazardous Spill Technology Branch – Ira Wilder, Acting	(201) 548-3507
Industrial Pollution Control Branch – John Ciancia, Acting	(201) 548-3410
Watercraft and Recreational Pollution Control Branch – William J. Librizzi, Acting	(201) 548-3513
Mining Pollution Control Branch – Ronald D. Hill, Acting	(513) 684-4410

ORD Program Elements Assigned:
1BB036 – Heavy Industrial Sources
1BB038 – Transportation Sources
1BB040 – Mining Sources
1BB041 – Oil & Hazardous Materials Spills

National Environmental Research Center
Cincinnati, Ohio 45268

METHODS DEVELOPMENT AND QUALITY ASSURANCE RESEARCH LABORATORY

Broadway Building, Cincinnati
(use Center Address for Mail)
FAX (513) 684-2927

Dwight G. Ballinger, Director	(513) 684-2925
Physical-Chemical Methods Branch - Robert C. Kroner	(513) 684-2916
Biological Methods Branch - Vacant	
Quality Assurance and Laboratory Evaluation Branch - John A. Winter	(513) 684-2923
Instrumentation Development Branch - Anthony F. Mentink	(513) 684-3237
Radiochemistry and Nuclear Engineering Branch - Dr. Bernd Kahn	(513) 684-3237

ORD Program Elements Assigned:
1BA027 - Methods Development for Identification of Pollutants
1HA327 - Monitoring Quality Assurance

SOLID AND HAZARDOUS WASTE RESEARCH LABORATORY

Ridge Building, Cincinnati
(use Center Address for Mail)
FAX (513) 684-4262 TWX (810) 461-2069

Robert L. Stenburg, Director	(513) 684-4477
Disposal Branch - Norbert Schomaker	(513) 684-4487
Processing Branch - Albert J. Klee	(513) 684-4408

ORD Program Elements Assigned:
1DA312 - Behavioral Research
1DA313 - Environmental Effects Research
1DB063 - Collection & Processing Technology
1DB064 - Disposal Technology
'DB311 - Hazardous Solid Wastes
'DB314 - Resource Recovery Technology

National Environmental Research Center
Cincinnati, Ohio 45268

WATER SUPPLY RESEARCH LABORATORY
Robert A. Taft Center, Cincinnati
(use Center Address for Mail)
FAX & TWX same as Center

Gordon G. Robeck, Director	(513) 684-8311
Criteria Development Branch – Leland J. McCabe, Jr.	(513) 684-8243
Standards Attainment Branch – Dr. James M. Symons	(513) 684-8305

ORD Program Elements Assigned:
1BA019 – Water Quality Health Effects Research
1CA046 – Water Supply Health Effects
1CB047 – Water Supply Control Technology

National Environmental Research Center
P.O. Box 15027
Las Vegas, Nevada 89114

Dr. Delbert S. Barth, Director
(702) 736-2969, X201

Hours: 7:45 - 4:30 PST
FAX (702) 736-2969, X241 TWX (910) 397-6878
Operator (702) 736-2969

Deputy Director - John R. McBride	(702) 736-2969
Senior Science Advisor - Dr. Stuart C. Black	(702) 736-2969
Program Coordination Staff - Walter E. Petrie	(702) 736-2969
Public Affairs Staff - Geneva S. Douglas	(702) 736-2969
Administrative Staff - Marianne Carpenter	(702) 736-2969

MONITORING OPERATIONS LABORATORY

Donald T. Wruble, Acting Director	(702) 736-2969
Technical Assistant - Vernon E. Andrews	(702) 736-2969
Program Coordinators - Allan E. Smith	(702) 736-2969
Charles F. Costa	(702) 736-2969
Water Monitoring Branch - Robert W. Thomas	(702) 736-2969
Air Monitoring Branch - Roy B. Evans	(702) 736-2969
Terrestrial Monitoring Branch - Wayne A. Bliss	(702) 736-2969
Aircraft Operations Branch - Chester M. Dropp	(702) 736-2969
Imagery Acquisition and Interpretation Branch - Leslie M. Dunn	(702) 736-2969

ORD Program Elements Assigned:
1BA029 - Lake Survey
1HA326 - Advanced Monitoring Techniques

National Environmental Research Center
Las Vegas, Nevada 89114

MONITORING SYSTEMS RESEARCH AND DEVELOPMENT LABORATORY
George B. Morgan, Acting Director (702) 736-2969

Technical Advisor - Dr. Richard E. Stanley (702) 736-2969
Operations Officer - James G. Payne, Jr. (702) 736-2969

Monitoring Systems Analysis Staff - Francis N. Buck (702) 736-2969
Contact Monitoring Methods Branch - Erich W. Bretthauer (702) 736-2969
Remote Monitoring Methods Branch - Dr. S. Harvey Melfi (702) 736-2969
Pollutant Pathways Branch - Dr. J. Craig McFarlane (702) 736-2969
Exposure/Dose Assessment Branch - Dr. Robert G. Patzer (702) 736-2969
Farm and Animal Investigation Branch - Dr. Donald D. Smith (702) 736-2969

ORD Program Elements Assigned:
1AA008 - Formation & Decay of Pollutants
1AA010 - Instrumentation & Analytical Methods Development
1FA082 - Radiation Health Effects Research
1FA083 - Radiation Pathways Research
1HA325 - Data & Information Research
1HA326 - Advanced Monitoring Techniques
1HA327 - Monitoring Quality Assurance
XF1106 - AEC Radiation Effects Program (Reimbursable)
XF1107 - AEC Animal Investigation Program (Reimbursable)

TECHNICAL SUPPORT LABORATORY
Richard E. Jaquish, Acting Director (702) 736-2969

Laboratory Operations Branch - James W. Mullins (702) 736-2969
Data Services Branch - Robert N. Snelling (702) 736-2969
Quality Assurance Branch - Arthur N. Jarvis (702) 736-2969
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1HA327 - Monitoring Quality Assurance

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DIRECTORY OF OR&D PROGRAM ELEMENT TITLES AND TECHNICAL RESPONSIBILITY

PROGRAM ELEMENT	PROGRAM ELEMENT TITLE	PAM	PED
1AA001	Pollutant Characterization	W. Clayton	G. Hueter (RTP)
1AA002	Fuel & Fuel Additive Registration	F. Wilkes	J. Moran (RTP)
1AA003	Regional Air Pollution Study (RAPS)	F. Wilkes	J. Thompson (RTP)
1AA004	Economic Criteria	P. House	J. Knelson (RTP)
1AA005	Community Health Effects Surveillance Studies (CHESS)	W. Clayton	J. Knelson (RTP)
1AA006	Ecological Effects of Air Pollution	F. Wilkes	N. Glass (CO) P. Altshuller (RTP)
1AA007	Biomedical Research	W. Clayton	J. Knelson (RTP) J. Garner (RTP) J. Stara (CI)
1AA008	Formation & Decay of Pollutants	F. Wilkes	P. Altshuller (RTP) G. Morgan (LV)
1AA009	Meteorological Research	F. Wilkes	L. Niemeyer (RTP) R. Latimer (CO)
1AA010	Instrumentation and Analytical Methods Development	H. Enos	P. Altshuller (RTP) G. Morgan (LV)
1AB012	Particulate Control	R. Harrington	J. Burchard (RTP)
1AB013	SO(x) Control	R. Harrington	J. Burchard (RTP)
1AB014	NO(x) Control	R. Harrington	J. Burchard (RTP)
1AB015	Control Technology-Other Pollutants	R. Harrington	J. Burchard (RTP)
1BA019	Water Quality Health Effects Research	W. Clayton	G. Robeck (CI)
1BA020	Agricultural Uses	F. Wilkes	F. Wilkes (HQ)

PROGRAM ELEMENT	PROGRAM ELEMENT TITLE	PAM	PED
1BA021	Freshwater Fishes, Other Freshwater Life, and Wildlife	F. Wilkes	D. Mount (CO) R. Latimer (CO)
1BA022	Marine Fishes, Other Marine Life and Wildlife	F. Wilkes	E. Schneider (CO) R. Latimer (CO)
1BA023	Fate of Pollutants in Fresh Surface Waters	F. Wilkes	D. Duttweiler (CO)
1BA024	Fate of Pollutants in Ground Waters	F. Wilkes	W. Galegar (CO)
1BA025	Fate of Pollutants in Marine Waters	F. Wilkes	N. Jaworski (CO)
1BA026	Fate of Pollutants in Large Lakes	F. Wilkes	T. Davies (CO)
1BA027	Methods Development for Identification of Pollutants	H. Enos	D. Ballinger (CI) D. Duttweiler (CO)
1BA029	Lake Survey	M. Bills	D. Wruble (LV) N. Jaworski (CO)
1BA030	Water Quality Implementation Research	P. House	R. Shull (WERC)
1BA031	Eutrophication and Lake Restoration	F. Wilkes	N. Jaworski (CO)
1BA032	Thermal Pollution Research	F. Wilkes	N. Jaworski (CO)
1BB033	Municipal Sewered Discharges	W. Rosenkranz	J. Convery (CI)
1BB034	Combined Sewer Overflows & Storm Water Discharges	W. Rosenkranz	P. Lederman (CI)
1BB035	Non-Sewered Domestic Wastes	W. Rosenkranz	J. Convery (CI)
1BB036	Heavy Industrial Sources	W. Lacy	P. Lederman (CI) N. Jaworski (CO) D. Duttweiler (CO) W. Galegar (CO) T. Davies (CO)
1BB037	Food, Paper, and Other Industrial Sources	W. Lacy	N. Jaworski (CO)

PROGRAM ELEMENT	PROGRAM ELEMENT TITLE	PAM	PED
1BB038	Transportation Sources	T. Murphy	P. Lederman (CI)
1BB039	Agricultural Sources	T. Murphy	D. Duttweiler (CO) W. Galegar (CO) N. Jaworski (CO)
1BB040	Mining Sources	T. Murphy	J. Convery (CI) W. Galegar (CO) D. Duttweiler (CO)
1BB041	Oil and Harzardous Materials Spills	T. Murphy	P. Lederman (CI)
1BB042	Hydrologic Modification	T. Murphy	T. Davies (CO)
1BB043	Treatment Process Development and Optimization	W. Rosenkranz	J. Convery (CI)
1BB044	Cold Climate Waste Treatment	W. Rosenkranz	R. Latimer (CO)
1BB045	Water Quality Control	W. Rosenkranz	W. Galegar (CO)
1BB392	Thermal Pollution Technology	W. Lacy	N. Jaworski (CO)
1CA046	Water Supply Health Effects Research	W. Clayton	G. Robeck (CI)
1CB047	Water Supply Control Technology	W. Clayton	G. Robeck (CI)
1DB063	Collection and Processing	F. Wilkes	R. Stenburg (CI)
1DB064	Disposal Technology	F. Wilkes	R. Stenburg (CI)
1DB311	Hazardous Solid Wastes	F. Wilkes	R. Stenburg (CI)
1DA312	Behavioral Research	P. House	R. Stenburg (CI)
1DA313	Environmental Effects Research	W. Clayton	R. Stenburg (CI)
1DB314	Resource Recovery Technology	F. Wilkes	R. Stenburg (CI)
1DA315	Economic Benefit Analysis	P. House	F. Abel (WERC)
1EA077	Pesticides Ecological Effects Research	F. Wilkes	T. Duke (CO)

PROGRAM ELEMENT	PROGRAM ELEMENT TITLE	PAM	PED
1EA078	Pesticides Health Effects Research	W. Clayton	W. Durham (RTP)
1EA079	Pesticides Identification Methodology	H. Enos	W. Durham (RTP)
1EB080	Alternative Methods of Pest Control	F. Wilkes	R. Papetti (HQ)
1EA435	Pesticides Effects in the Terrestrial Environment	F. Wilkes	N. Glass (CO)
1FA081	Radiation Epidemiological Research	W. Clayton	J. Knelson (RTP)
1FA082	Radiation Health Effects Research	W. Clayton	J. Garner (RTP) G. Morgan (LV)
1FA083	Radiation Pathways Research	F. Wilkes	J. Garner (RTP) G. Morgan (LV)
1FA084	Radiation Methods and Measurements	H. Enos	J. Garner (RTP)
XF1106	AEC Radiation Effects Program	W. Clayton	G. Morgan (LV)
XF1107	AEC Animal Investigation Program	F. Wilkes	G. Morgan (LV)
1GA085	Noise Health Effects Research	W. Clayton	G. Simon (HQ)
1GB090	Noise Pollution Control	R. Harrington	R. Harrington (HQ)
1HA091	Standards Research	P. House	R. Shull (WERC)
1HA092	National Center for Toxicological Research	W. Clayton	W. Clayton (HQ)
1HA093	Systems Evaluation	P. House	R. Shull (WERC)
1HA094	Economics Research	P. House	F. Abel (WERC)
1HA095	Ecological Impact	P. House	E. Royce (WERC)
1HA096	Ecosystem Research	P. House	P. House (WERC)
1HA097	Environmental Management Research	P. House	P. House (WERC)
1HA098	Environmental Forecasting	P. House	P. House (WERC)

PROGRAM ELEMENT	PROGRAM ELEMENT TITLE	PAM	PED
1HA099	Toxic Substances Health Effects Research	W. Clayton	W. Durham (RTP)
1HA100	Toxic Substances Ecological Effects Research	F. Wilkes	F. Wilkes (HQ)
1HA325	Data Information Research	M. Bills	D. Shearer (RTP) G. Morgan (LV)
1HA326	Advanced Monitoring Techniques	H. Enos	D. Shearer (RTP) D. Wruble (LV) G. Morgan (LV)
1HA327	Monitoring Quality Assurance	G. Ozolins	D. Shearer (RTP) W. Durham (RTP) D. Ballinger (CI) B. Kahn (CI) R. Jaquish (LV) G. Morgan (LV)
1HA436	Toxic Substances Effects in the Terrestrial Environment	F. Wilkes	N. Glass (CO)
1HB101	Technology Transfer	A. Trakowski	R. Crowe (HQ)
1HA323	Minority Institutions Research Support	W. Ashley	W. Ashley (HQ)
1RW103	Program Management – Research and Development	W. Cawley	Multiple
1RX105	Program Support – Research and Development	W. Cawley	Multiple

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ORGANIZATION AND FUNCTIONS
OFFICE OF RESEARCH AND DEVELOPMENT

The Office of Research and Development conducts and supports an integrated research, development, and demonstration program for EPA on a wide variety of subjects primarily related to pollution sources, fate and effects, environmental sciences, implementation research, pollution control technology, and monitoring systems. This Office establishes its objectives and priorities in response to the overall mission and priorities of the Agency and is highly mission-oriented, concerned with solving specific priority problems rather than merely advancing scientific knowledge. OR&D is responsible for assuring quality control and standardization of analytical techniques for the Agency, as well as, promoting, through technology transfer, the use of new techniques, processes, methodologies, analytical methods, etc., in pollution control.

The **Office of the Principal Science Adviser** is responsible for providing special studies and consultation on technical program issues to the Assistant Administrator, to the Office of Research and Development and to the National Environmental Research Centers. The Science Advisory Board, a series of specialized Advisory Committees whose members are extramural to the Agency, provides expert and independent advice on issues relating to the scientific and technical problems facing the Agency, the strategies devised to meet these problems, the technical programs to solve problems, and the priorities among these.

The **Office of Program Management** is responsible for the internal program management operations of the Office of Research and Development. Provides independent appraisals for the Assistant Administrator regarding operations of the Office of Research and Development; provides administrative and support services for the Office of the Assistant Administrator, and conducts a program to enhance the capabilities of minority institutions to participate in environmental research and development. Provides management advice and assistance to the Assistant Administrator and components of the Office of Research and Development, including the review and coordination of organizational adjustments within the Office of Research and Development.

The **Office of Program Integration** is responsible for assuring that research and engineering strategies and programs are responsive to Agency goals. Coordinates Office of Research and Development representation to Agency Steering Committees and reviews the responsiveness of the Office of Research and Development to Agency components responsible for approving criteria, guidelines, regulations, standards and special reports. Coordinates and develops multiarea policy and strategy studies. Provides guidance to technical aspects of interagency coordination to achieve maximum responsiveness of Federal research and development to EPA research needs. Coordinates all international activities of the Office of Research and Development.

The **Office of Environmental Engineering** is responsible for planning, coordinating, establishing, reviewing, and assessing a comprehensive Agency research, development, and demonstration program in the area of pollution prevention and control technology. The products of this program consist of methods, techniques, materials, devices and systems for the prevention, control and abatement of pollution. In developing its programs, due regard is given to achieving environmental protection systems which minimize and balance the effects of shifting pollutants to other media. The Office assures that the results of this program are translated into operational solutions to environmental engineering problems, giving due regard to costs.

The **Municipal Pollution Control Division** is responsible for planning, assessing, establishing, and reviewing research, development, and appropriate demonstration programs aimed at developing and improving technology to prevent, control, and abate water pollution from municipal sources. These programs include development and improvement of municipal wastewater treatment plants and sewer systems, control of pollution from storm and combined sewers and nonsewered municipal runoff, wastewater treatment for special climatic and regional conditions, and other municipal and domestic pollution problems as assigned.

The **Industrial Pollution Control Division** is responsible for planning and assessing research, development, and appropriate demonstration programs for the development and improvement of technology to prevent, control, and abate water pollution from industrial sources. This Division establishes and coordinates programs which include prevention and control of pollution from industrial wastes, thermal discharges, and joint municipal-industrial wastes. The techniques considered will include changes of industrial processes as well as treatment of waste discharges.

The Non-Point Pollution Control Division is responsible for program planning and assessing all research, development, and appropriate demonstration programs aimed at developing and improving technology to prevent, control, and abate water pollution from sources other than municipal discharges or industrial effluents and for the protection and restoration of water quality resulting from degradation by pollutants after their discharge into the environment. This Division establishes and coordinates programs which include non-point sources from agricultural, mining, construction, and dredging operations; from silviculture; and from spills of oil or hazardous materials. They also include environmental techniques, such as, in-stream treatment and removal or neutralization of accumulated pollutants.

The Air Pollution Control Division is responsible for planning, coordinating, establishing, reviewing, and assessing programs aimed at the development and improvement of technology to prevent, control, and abate air and noise pollution from stationary and mobile sources and other sources of pollution as assigned.

The Technology Transfer Staff is responsible for the planning, development, coordination, and implementation of an Agency technology transfer program. The primary objective of this program is to effectively impact the construction, installation, and operation of environmental pollution control and abatement facilities to assure that the latest practical technologies are made known to potential users. This objective is to be attained by quickly transferring the products of research and development to general use through dissemination of newly developed, successful technologies to consulting engineering firms, municipal, industrial, and State design engineers, city managers and directors of public works, conservation groups, and others having influence over the design and construction of environmental pollution prevention, control and abatement facilities.

The Office of Environmental Sciences is responsible for planning, coordinating, establishing, reviewing, and assessing a comprehensive Agency research, development, and demonstration program in the area of criteria development for the establishment of environmental quality standards and guidelines and identification of appropriate locations for control actions. The products of this program will consist of data and information on the effects of pollution on man and his environment and on the transport and fate of pollutants and methods, techniques, and systems for the collection and evaluation of such data and information.

The Special Assistant for Water Supply Research is responsible for overseeing and coordinating those research, development, and demonstration programs whose principal objectives are concerned with improving and maintaining the quality of the Nation's potable water supplies. He maintains continuing liaison with groups concerned with this subject both within and outside the Agency, and assures that a properly balanced and effective effort is maintained.

The **Health Effects Division** plans and assesses research and development programs aimed at developing the scientific basis for the protection of human health from environmentally related insults. This Division establishes and coordinates programs which include the identification and/or prediction of pollutants requiring investigation and the determination or forecasting of the effects of such pollutants on man's health. Such investigations include the determination of the various modes of interaction between man and the potential insults so as to permit appropriate environmental protection.

The **Ecological Processes and Effects Division** plans, integrates, evaluates, and prescribes research and development programs which develop the scientific basis for establishing and maintaining environmental quality as related to non-human receptors of pollution. These programs include the identification and/or prediction of pollutants requiring investigation and the determination and forecasting of their sources and physical and biological paths, their persistence and fate in the physical environment and ecological systems, and their effects on both ecological and physical systems.

The **Office of Monitoring Systems** is responsible for planning, coordinating, establishing, reviewing, and assessing a comprehensive Agency research, development, and demonstration program in the area of measurement and monitoring equipment, techniques and systems. Plans, establishes, and coordinates Agencywide programs for quality assurance, standardization of analytical methods and sampling techniques, quality control, and improvement of data utility. The products of this program will consist of methods, techniques, devices, and systems for the detection and measurement of pollutants and the assessment of environmental quality.

The **Planning and Review Staff** is responsible for assuring the technical feasibility of the Agency's planned monitoring activities. Reviews and concurs on an Agencywide basis in all budgetary and planning actions involving monitoring which require Headquarters approval. Coordinates with other program offices having monitoring responsibilities in the development of long-range, multimedia monitoring strategies to meet Agency objectives. Assists in identification of monitoring program needs and gaps and in the development of guidelines for optimization of monitoring operations. Participates in national and international monitoring activities as appropriate.

The **Quality Assurance Division** is responsible for an Agencywide standardization and quality control program to assure that environmental data produced by Federal, State, and local agencies are compatible, accurate, and legally defensible. Assures the selection, evaluation, standardization, and publication of procedures and methods for sampling and analyzing environmental pollutants and reporting data. Assures the establishment of procedures for and determination of the acceptability and equivalence of methods and instruments for field use. Assures the preparation and dissemination of appropriate guidelines, and provides technical assistance in the area of quality assurance to Regional Offices, State, and local monitoring programs to assure a systematic and coordinated approach for the definition of environmental quality.

The **Equipment and Techniques Division** is responsible for planning, establishing and assessing research, development, test, and evaluation programs aimed at developing and improving equipment, methodology, and systems needed for environmental monitoring. These programs include the identification of monitoring requirements, demonstration of instrument performance and the development of necessary interpretive techniques, coordination of activities employing remote and in situ sensing technology, establishment of the feasibility of utilizing advanced sampling and sensing instrumentation, assurance that the Agency has access to state-of-the-art technology as required to integrate components and techniques into effective operational systems, and test and evaluation of techniques for operational implementation, including the establishment of monitoring networks necessary to support the test and evaluation of total systems.

The **Data and Information Research Division** is responsible for assessing research, development, and appropriate demonstration programs aimed at the establishment of effective research information and data systems, including multimedia or multipollutant data analysis and special data handling and processing studies. These programs are conducted within prescribed Agencywide data systems guidelines.

The **Washington Environmental Research Center** plans and conducts a program of interdisciplinary research to develop and test techniques of environmental analysis and management applicable at national, regional and local levels. An integral part of the Washington Environmental Research Center's program is the demonstrative application of these techniques to current policy problems. Assists in strategy studies and program planning analyses requiring economic and social science inputs.

The **National Environmental Research Center, Research Triangle Park, North Carolina** provides a sound scientific basis for control of environmental pollutants which adversely affect human health and welfare. The NERC conducts clinical and epidemiological studies to define the relationships between levels of environmental pollutants and specific effects on human health, conducts animal studies to estimate the hazard to human health of exposure to environmental pollutants such as radiation, examines the chemical and physical transformations that pollutants undergo in air, water, and land, investigates the meteorological aspects of air pollution, develops instruments and methods to measure concentration of pollutants in the ambient environment and at the source, develops control technologies for abatement of air pollution from stationary sources and assesses the hazard to human health of exposure to single pesticides, combinations of pesticides, and pesticides in combination with other environmental factors.

The **Human Studies Laboratory** conducts studies designed to define the relationships between environmental pollutants, singly or in combination, and specific undesirable effects. These include clinical studies on human subjects and epidemiologic studies on human populations. Major emphasis is placed on the collection of sufficient information for formulating, evaluating, and revising environmental quality criteria and assessing the health impact of control technology thus providing intelligent basis for establishing environmental pollutants which may have adverse effects on human health.

The **Experimental Biology Laboratory** conducts and manages biological research designed to detect, define, and quantify the effects of environmental pollutants. This involves laboratory studies of intact animals or cellular and subcellular systems using a controlled and simulated environment. Major emphasis is placed on developing information for formulating and revising environmental quality criteria in support of human health studies.

The **Chemistry and Physics Laboratory** develops and conducts a research and development program in the chemistry and physics of environmental control. Develops instruments and measurement techniques for field monitoring, surveillance, and laboratory analysis of environmental pollutants. Conducts a program of experimental and theoretical studies and field measurements of the ambient atmosphere. Determines the chemical and physical transformations that pollutants undergo fron source to receptor in the atmosphere. Develops and applies methodology for characterizing and determining the physical effects of emissions associated with the use of fuels and fuel additives.

The **Control Systems Laboratory** directs and manages engineering research and development programs related to the abatement of air pollution from all stationary sources. Activities encompass development and improvement of control devices; such as scrubbers, filters, electrostatis precipitators; of complete effluent gas treatment processes; of combustion methods and equipment; of fuel preparation technology; and of associated sampling and analysis instrumentation systems.

The **Meteorology Laboratory** develops and conducts research concerned with the meteorological aspects of air pollution. Conducts theoretical and experimental studies of the physical processes affecting the transport, diffusion, transformations, and disposition of air pollutants in and from the atmosphere. Develops and improves techniques and methodologies to determine and forecast air pollution potential and climatology. Develops analytical diffusion models to predict the temporal and spatial distribution of air pollutants. Conducts studies on the effects of air pollutants on the geophysical processes of weather and climate as well as the energy balance of the earth-atmosphere system. Develops remote sensing techniques for measuring meteorological parameters in urban areas. Provides meteorological services to other EPA activities as required.

The **Quality Assurance and Environmental Monitoring Laboratory** provides analytical methods standardization, quality control, equivalency, and specialized field monitoring and analytical support to the Regional Offices, Office of Enforcement and General Counsel, Office of Air and Water Programs, and other NERC RTP components. Responsible for the field evaluation of commercial air pollution instrumentation. Carries out mathematical and statistical evaluation and report preparation of internally generated data.

The **Pesticides and Toxic Substances Effects Laboratory** conducts research to provide data necessary for the intelligent assessment of the hazard to human health of exposure to single pesticides, combinations of pesticides and pesticides in combination with other environmental factors. The studies will be concerned with the identification of pesticides and their metabolites on normal biological functions, including the function of the primate nervous system. Develops, evaluates and improves the techniques and chemical methods for direct and indirect measurment of exposure to pesticides.

The **National Environmental Research Center, Corvallis, Oregon** carries out research programs on the ecological effects of pollution. The emphasis now is on developing scientific information for establishment of water quality standards. In an effort to broaden its scope, however, NERC-Corvallis will increasingly be carrying out research on a total environmental scale to develop the scientific basis for determining the ecological consequences of all aspects of environmental pollution. The mission is to develop a full and thorough understanding of the many complex interrelationships among specific components of the ecological system.

The **Arctic Environmental Research Laboratory** conducts and manages research on the processes and effects of pollutants on the Arctic ecology and on the development of cold climate pollution control technology.

The **Grosse Ile Laboratory** manages and conducts a research program to evaluate the impact of human activity on large lakes, particularly the Great Lakes to determine the impact of hydrologic modifications on the environment, and to develop and demonstrate the treatment and control of waste discharges emanating from the ferrous metals industry and the machinery and transportation industries.

The **Gulf Breeze Environmental Research Laboratory** conducts and manages research on the ecological effects of pesticides and other synthetic hazardous organics. Specific responsibilities include the development of information essential for the pesticide registration and control program and supporting data for the development of water quality criteria to protect aquatic life in the marine and estuarine environments.

The **National Ecological Research Laboratory** manages and conducts research on the effects of environmental pollutants on terrestrial plants and animals of all forms. Mathematical modeling, experimental design, and statistical analysis are applied to determine the fate and transformation of stressing agents through impacted ecosystems and to predict the long-term effects on plant and animal communities.

The **National Marine Water Quality Laboratory** conducts research to develop a sound scientific basis for water quality criteria which are adequate to protect the propagation of marine and estuarine fishes and their food chain organisms, other marine and estuarine aquatic life, and wildlife.

The **National Water Quality Laboratory** conducts and manages a research program to develop a sound scientific basis for water quality criteria which provide for protection and propagation of freshwater and anadromous fishes and their food chain organisms, and other freshwater aquatic life and wildlife. The research program is carried out by teams which are established for specific research projects and which are dissolved at the termination or completion of those projects.

The **Pacific Northwest Environmental Research Laboratory** conducts and manages research to develop an understanding of the eutrophication process and of methods to control and measure eutrophication; studies significant lakes in the country to determine the state and cause of eutrophication as a guide to initiating control programs; investigates the transport and fate of heated water discharges and the development of control measures to prevent or minimize heated discharges determines the transport and fate of pollutants in coastal waters; and develops and demonstrates water pollution control technology for "soft" industries.

The **Robert S. Kerr Environmental Research Laboratory** conducts research to investigate the nature, transport, and fate of pollutants in ground water; to develop and demonstrate technology to improve water quality by means other than conventional waste treatment; and to develop and demonstrate pollution control technology for: the petroleum refining and petrochemical/organic chemicals industries, the meat processing and miscellaneous SIC category industries, irrigation return flows and animal feedlot wastes and mining sources including oil production and oil shale.

The **Southeast Environmental Research Laboratory** conducts and manages research on and development of techniques to identify and measure environmental pollutants, determine their fate and impact on freshwater ecosystems, and control their agricultural or related industrial sources by strategies developed from environmental or process system models. Focus is on specific pollutants, especially pesticides and other toxicants, plant nutrients, and natural/synthetic organics and their environmental pathways.

The **National Environmental Research Center, Cincinnati, Ohio** develops technology and practical systems for control of pollutants on a total environmental basis. This NERC develops and brings to use advanced methods for treatment of sewage and control of water pollution, develops, refines, and promulgates improved analytical methods for the measurement and collection of water quality data, develops solutions to various specialized water pollution programs, develops means to assure that the Nation's water supplies and recreational waters can be maintained free of harmful substances, seeks solutions to the multifaceted problems of solid waste management, defines and develops methods for measuring the harmful effects of environmental pollutants on biological systems such as animals and microorganisms, provides scientific data to assure the safe operation of commercial nuclear power plants and monitor all possible effluents, develops and demonstrates innovative and advanced techniques for handling a variety of water pollution problems.

The **Advanced Waste Treatment Research Laboratory** is responsible for the development and demonstration of process technology for the collection and treatment of all municipal wastewaters derived from sanitary sewage, storm and combined sewer flows, nonsewered flows, and industrial wastewaters discharged to municipal sewers and for the processing and disposal of sludges derived from municipal wastewaters during their treatment. Performs evaluation of processes and their application for the purpose of cost analysis and process optimization; evaluates the process technology necessary for water reuse as well as for discharge; and provides assistance in the form of manpower and information services to the OR&D Technology Transfer program.

The **Industrial Waste Treatment Research Laboratory** is responsible for the development and demonstration of technology to prevent and control pollution from: spills of oil and hazardous materials, various industrial sources, watercraft and recreational sources, and mining sources. Modifies and extends the technology used in the municipal wastewater field and uses advanced technology in the solution of various industrial waste problems. Provides considerable technical assistance to other EPA and Federal organizations in the areas of oil and hazardous spills, watercraft and recreational wastes and mining wastes.

The **Solid and Hazardous Waste Research Laboratory** is responsible for research into new and improved systems for solid and hazardous waste management. Investigates processing and disposal practices as they relate to both the development of technology and the determination of environmental effects. Processing methods for either disposal or resource recovery are studied. Provides data necessary for the establishment of processing and disposal guidelines, which require a broad understanding of effects relating to health, ecology and socioeconomic factors.

The **Water Supply Research Laboratory** is responsible for developing health and aesthetic effects information contributing to the establishment of drinking water standards and treatment technology necessary for the attainment of these standards. Coordinates NERC technical assistance to the Office of Water Programs in several areas, such as laboratory certification, analysis of samples from interstate carriers, and general technical information.

The **Methods Development and Quality Assurance Research Laboratory** is responsible for developing, improving, and validating methodology for the collection of physical, chemical, radiological, microbiological, and biological water quality data by EPA Regional Offices, Office of Enforcement and General Counsel, Office of Air and Water Programs, and other NERC Cincinnati organizations. Evaluates automatic monitoring instrumentation, conducts a reference sample program for analytical methods and performance evaluation, and advises EPA and other laboratories in the development of monitoring and quality control programs for water quality activities.

The **Environmental Toxicology Research Laboratory** is responsible for the determination of toxicologic effects of emissions and effluents to environmental media, and provides health intelligence for the development of pollutant control strategies. The biological effects data are instrumental in the development of environmental standards.

The **National Environmental Research Center, Las Vegas, Nevada** carries out research and development programs for monitoring the environment. Its years of experience in monitoring radioactive materials in environmental media has provided the basis for its broadened programs to develop methods and systems for monitoring the conditions of the environment with regard to the sources, movement and fate of environmental pollutants and the changes in their state with time.

The **Monitoring Operations Laboratory** performs multidisciplinary measurements to determine sources and levels of environmental pollutants; participates in special studies involving air, water and terrestrial pollution in support of Headquarters, regions, other NERC elements or outside Centers or Agencies; provides data for assessment of environmental quality factors using aerial and ground-based research monitoring networks; conducts special surveys and other special monitoring activities. Provides field testing of instrumentation and techniques, including development of procedures and guides, to assure their application to environmental monitoring. Provides an aerial emergency response support capability for monitoring pollutants in the event of episodes or accidental releases.

The **Monitoring Systems Research and Development Laboratory** conducts programs to develop chemical and physical methodology to monitor pollutants in media of the environment and quantify their nature, magnitude, and distribution. These programs will identify and quantify important exposure pathways of pollutants and critical exposure in the immediate vicinity of sensitive receptors. Major emphasis is placed on those chemical, physical, or biological measurements which define doses of specific pollutants from significant sources to sensitive receptors. Develops and implements reference or standard methods and quality control procedures for Agency environmental activities in cooperation with the other NERC's as appropriate.

The **Technical Support Laboratory** provides analyses of environmental samples to NERC-Las Vegas, other activities of EPA, and State and local agencies. Develops special methods and procedures for laboratory analysis. Operates the Center's data processing facility and develops new data processing techniques and capabilities. Specialized services are provided in the area of technical writing, editing, and graphics. Implements EPA's quality assurance program in the field of radiation measurements. Provides central electronic, electromechanical, primary calibration, and related craft services for NERC-Las Vegas.